Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Communications Marketplace Report	)	GN Docket No. 18-231
Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) to Accelerate Investment in Broadband and Next-Generation Networks	)	WC Docket No. 18-141
Improving Competitive Broadband Access to Multiple Tenant Environments	)	GN Docket No. 17-142

COMMENTS OF
NEW AMERICA'S OPEN TECHNOLOGY INSTITUTE, THE INSTITUTE FOR LOCAL SELF-RELIANCE, NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS, NATIONAL LEAGUE OF CITIES, & NEXT CENTURY CITIES

New America's Open Technology Institute
740 15th Street NW, Suite 900
Washington, DC 20005

The Institute for Local Self-Reliance
2720 E. 22nd Street
Minneapolis, MN 55406

National Association of Telecommunications Officers and Advisors
3213 Duke Street, #695
Alexandria, VA 22314

National League of Cities
660 North Capitol Street NW, Suite 450
Washington, DC 20001

Next Century Cities
1200 18th Street, NW, Suite 700
Washington, DC 20036

August 17, 2018

I. Introduction

New America's Open Technology Institute, the Institute For Local Self-Reliance, the National Association of Telecommunications Officers and Advisors, the National League of Cities, and Next Century Cities appreciate the opportunity to comment on the Federal Communications Commission's ("the Commission") forthcoming report on the state of fixed broadband competition in the United States. The market for fixed broadband service is stagnant at best, marked by low competition, high costs, and opaque service quality. In these comments, we outline the myriad ways in which competition is thwarted, both by industry practices and legal restrictions, and offer suggestions for Commission action.

As an initial matter, we examine the federal government's ability to analyze and collect data about the broadband market. Currently, the government is reliant on self-reported data from internet service providers (ISPs), which results in a poor understanding of where broadband is deployed, how much it costs, and whether the advertised speeds match the actual performance. The Commission must improve its system for gathering data about the broadband market.

Second, the Commission asks for comment on laws and regulations that stand in the way of fixed broadband competition. Many states have law on the books that thwart or outright prohibit the development of municipal broadband. These laws prevent communities from investing in their own networks and competing with incumbent ISPs. Additionally, a recent petition from USTelecom to forbear from reselling unbundled network elements to competitors would eliminate a federal policy that promotes competition and market entry.

Third, ISPs employ a variety of tactics to freeze out competition and leave millions of Americans with only one choice for fixed broadband. Fixed broadband providers decline to compete against each other in local markets across the country, erect high switching costs to

prevent consumers from taking their business elsewhere, and enter into anticompetitive deals with landlords of multiple tenant environments to stop competition.

Finally, the Commission is likely to hear some arguments that future 5G networks will compete with fixed broadband as a viable alternative. These claims are extremely premature, as 5G technologies are years away from large-scale deployment, and consumers are, in turn, years away from assessing for themselves whether the 5G experience mirrors that of fixed broadband. Further, 5G service is likely to focus on urban areas and rely heavily on fixed backhaul—which could *enhance* the market power of fixed ISPs. Accordingly, we urge the Commission to reject hyperbolic claims about 5G and limit its assessment in this proceeding to fixed ISPs.

II. The Government Needs Better Data to Evaluate the Broadband Market

The Commission requests comment on the criteria and metrics that should be used to evaluate the state of competition in the fixed broadband market.[1] To adequately assess the competitiveness of the fixed broadband market, the Commission must first diversify the datasets it reviews to monitor where ISPs are deploying fixed broadband. The Commission must also review the performance of the fixed broadband service that consumers actually receive. Finally, the Commission must review pricing data for fixed broadband service, as price has been found to be a key barrier to broadband adoption in the United States.

A. The Government's Current Data is Inaccurate and Unreliable

The federal government's understanding of the broadband market relies heavily on industry-reported data—a key flaw that results in inaccurate and unreliable data. Currently, the Commission relies on Form 477 data to assess the competitiveness of the fixed broadband

[1] Public Notice, GN Docket No. 18-231 (July 27, 2018), https://docs.fcc.gov/public/attachments/DA-18-784A1.pdf ("Public Notice").

market.[2] Although the consistency of Form 477 reporting provides an up-to-date record of fixed broadband providers' own metrics, over-reliance on industry data gives an incomplete picture of competition in the market. Specifically, Form 477 asks ISPs to report where they could provide service by census block. This method results in over-reporting, as under Commission policies, an ISP only needs to be able to provide service to one home in a given census block for that census block to be deemed fully served by that provider.[3] Additionally, and crucially, fixed broadband providers are not required to report the actual broadband speeds experienced by consumers in a given census block. Fixed broadband providers are only required to report the speeds that they could theoretically provide.[4] Various agencies have made efforts to collect better broadband competition data over the years—namely the NTIA's National Broadband Map and the aforementioned Form 477 program—but none have succeeded in providing an accurate, comprehensive dataset on the deployment, adoption, or cost of broadband service in the United States. The NTIA and FCC efforts were undermined by a variety of factors, including voluntary responses from industry, insufficiently granular data, and funding shortfalls that prevented the agencies from sustaining ongoing collection systems.

The government needs good broadband data to inform policymaking and allocate resources. For example, the FCC relies on broadband data to allocate the Universal Service Fund, which includes Connect America, Rural Health Care, and Lifeline. The federal

---

[2] *See* Federal Communications Commission, *Internet Access Services: Status as of December 31, 2016*, Figure 4 (Feb. 2018) ("Feb. 2018 Internet Access Services Report"). The report, and the figure on the state of fixed broadband competition, are based solely on Form 477 reporting.

[3] Federal Communications Commission, "Fixed Broadband Deployment Data from Form 477," https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477 ("A provider reports deployment of a particular technology and bandwidth in a census block may not necessarily offer that service everywhere in the block. Accordingly, a list of providers deployed in a census block does not necessarily reflect the number of choices available to any particular household or business location in that block, and the number of such providers in the census block does not purpose to measure competition").

[4] Comments of New America's Open Technology Institute, Access Humboldt, Benton Foundation, Center for Rural Strategies, Institute for Local Self-Reliance, National Digital Inclusion Alliance, National Hispanic Media Coalition, Next Century Cities, Public Knowledge, and X-Lab In the Matter of "Improving the Quality and Accuracy of Broadband Availability Data", National Telecommunications and Information Administration Docket No. 180427421–8421–01 (July 16, 2018).

government cannot adequately and effectively allocate these funds without accurate and comprehensive data collection techniques.

The need for better data is growing as the government becomes more dependent on online systems. For example, the Census Bureau plans to conduct its first-ever internet-based U.S. Census in 2020. Households that lack internet access will have paper forms mailed to their homes. Good data about the digital divide could help the Census Bureau identify and target such households to ensure that they are counted. However, if the Census Bureau were to rely on current FCC and NTIA datasets, it would almost certainly fail to identify millions of Americans—a gap that would severely undermine the accuracy of the 2020 Census and the wide range of activities that depend on Census data, including Congressional reapportionment, allocation of federal funding, and billions of dollars in business activity and research.

The government, the market, and the American people need a better system to collect broadband data. This new system must be accurate, reliable, and comprehensive. In addition to deployment, the government needs to collect data about the cost and performance of broadband service plans.

B. The Commission Needs Data About Broadband Performance

The Commission should alleviate the concerns raised by its current dependence on Form 477 data by diversifying where it gathers deployment data, and in particular, by taking into account fixed broadband service performance data as well.[5] While Form 477 shows where fixed broadband providers *could* deploy service at certain speeds, it is essential for the Commission to include a review of the actual service consumers *do* receive to get a clear view of the competition in the fixed broadband market. The actual speed consumers get when purchasing

[5] "Getting Up to Speed: Best Practices for Broadband Performance Measurement," New America's Open Technology Institute (June 2016), *available at* https://na-production.s3.amazonaws.com/documents/MeasuringBroadband.pdf.

fixed broadband plays a critical role in the health of the market, as the speed and price of internet service are the two biggest factors people consider when purchasing a plan.[6]

The Commission should consider the success of platforms such as Measurement Lab (M-Lab) as an example as to how to measure the performance of fixed broadband in specific geographic areas.[7] M-Lab is the largest open source internet measurement effort in the world. M-Lab hosts hundreds of servers throughout the world that allow anyone to test their connection, providing a more realistic measure of the consumer experience than ISP-hosted speed tests because M-Lab servers are located outside of any ISP's last-mile network (unlike ISP-hosted speed tests). M-Lab collects approximately 2 million measurements per day, producing a large, global dataset that is getting larger by the day.

M-Lab has been used to measure broadband speeds throughout the United States. For example, last year Seattle used M-Lab to create a citywide map of broadband speeds.[8] The map relies on user speed tests, which also ask the user to submit the name of their ISP, the speeds advertised in their service plan, and the cost of their service. This information is compiled to produce a detailed, granular map that relies on consumer-generated data rather than the self-reported, unverified data of Form 477.[9] The Seattle map presents an accurate view of the city's broadband market and is an instructive example for the federal government.

C. The Commission Needs Data About the Price of Fixed Broadband Service

The Commission should expand the scope of Form 477 to include broadband pricing data. Policymakers, advocates, and consumers have long sought this information. Indeed, the first recommendation of the 2010 National Broadband Plan was for the Commission to "collect,

---

[6] Russo et al., Cost of Connectivity 2014, New America's Open Technology Institute (Oct. 2014), https://www.newamerica.org/oti/the-cost-ofconnectivity-2014/.
[7] OTI is a partner of M-Lab.
[8] *See* City of Seattle, "Seattle Broadband Map," *available at* https://broadbandmap.seattle.gov.
[9] About the Broadband Speed Test, Seattle Information Technology, https://www.seattle.gov/broadband-speed-testabout.

analyze, benchmark and publish detailed, market-by-market information on broadband pricing and competition."[10] This long overdue step would facilitate meaningful analysis of marketplace competition, the public's access to broadband, and whether services are available at affordable rates.

Survey research consistently indicates that cost is a primary barrier to broadband adoption in the United States.[11] According to the latest Consumer Reports survey, U.S. consumers consistently indicate high dissatisfaction with the cost of their internet service, both for being too high and for containing inscrutable hidden fees.[12] Yet the Commission, and the federal government at large, has no reliable measure of how much Americans pay for broadband service or how prices have changed over time. This information vacuum handicaps policymaking at the Commission, Congress, and other agencies that oversee the telecommunications industry. Both the Department of Justice and the National Broadband Plan recommended that the Commission begin collect pricing information eight years ago.[13] The Commission should finally adopt these recommendations.

Broadband providers have long resisted price reporting because they claim such data is difficult to obtain. However, the FCC's various dockets on the Form 477 program do not support this claim. There is no clear accounting of how, exactly, this reporting would be infeasible or otherwise unduly burdensome to a broadband provider. Moreover, the imperative need for this data should outweigh any modest burdens incurred by industry.

The Commission, the Department of Justice, and Congress all recognize that the

---

[10] Federal Communications Commission, *Connecting America: The National Broadband Plan*, GN Docket No. 09-51, at XI (2010).
[11] *See, e.g.*, National Telecommunications and Information Administration, "Exploring the Digital Nation: Computer and Internet Use at Home" (2011); Federal Communications Commission, "93 Million Americans Disconnected from Broadband Opportunities," News Release, (Feb. 23, 2010).
[12] Consumer Reports, "People Still Don't Like Their Cable Companies, CR's Latest Telecom Survey Finds," (Aug. 8, 2018).
[13] *See* Federal Communications Commission, *Connecting America: The National Broadband Plan*, GN Docket No. 09-51, at 41 (2010); Notice of Ex Parte Communications, United States Department of Justice, GN Docket No. 09-51, at 20 (Jan. 4, 2010).

internet is a vital platform for our economy and our democracy—and yet the federal government lacks any reliable measure of the cost to access that platform. This reality has persisted for too long, to the detriment of informed policymaking and the public interest.

III. Government Policies Can Thwart or Promote Broadband Competition

The Commission asks whether any "laws, regulations, regulatory practices… pose a barrier to competitive entry into the communications marketplace or to the competitive expansion of existing providers of communications service."[14] Multiple states have laws that prevent the creation of community networks, which help incumbent providers consolidate market power and weaken competition. Further, an open proceeding at the Commission that would exempt incumbent providers from rules that require them to resell copper line access at nondiscriminatory rates has the potential to do serious damage to broadband competition.

A. State Laws Restrict or Prohibit Municipal Broadband

Some communities that are unserved or underserved by private ISPs have invested in their own, locally-grown networks to bring broadband to their residents and businesses. These municipal networks are often faster and cheaper than the service offered by incumbent ISPs in large cities.[15] Despite these benefits, approximately 20 states have passed laws that restrict or prohibit municipal broadband.[16]

[14] Public Notice at 1.
[15] David Talbot, Kira Hessekiel, and Danielle Kehl, "Community-Owned Fiber Networks: Value Leaders in America," Berkman Klein Center for Internet & Society at Harvard University (Jan. 10, 2018), *available at* https://cyber.harvard.edu/publications/2018/01/communityfiber.
[16] Baller Stokes & Lide, "State Restrictions on Community Broadband Services or Other Public Communications Initiatives" (Jan. 11, 2018), *available at* https://www.baller.com/2018/01/state-restrictions-on-community-broadband-services-or-other-public-communications-initiatives/.

According to the Institute for Local Self-Reliance, hundreds of U.S. localities provide some form of municipal broadband.[17] Chattanooga, Tennessee is the largest and most well-known example. The city's municipal power company, EPB, borrowed about $220 million to build its smart grid and fiber optic network.[18] The investment has paid off, as the University of Tennessee at Chattanooga's Department of Finance estimates that EPB's smart grid and fiber optic network has led to at least 2,800 jobs and an extra $865.3 million in the local economy between 2011 and 2015.[19] The network has generated revenues well in excess of operating costs and debt, and will soon add its 100,000th customer to the network, out of a total market potential of approximately 170,000 premises.[20]

Lafayette, Louisiana offers another example of a successful municipal broadband network. The community voted in 2005 to approve the build-out of a FTTH network through the publicly-owned Lafayette Utilities System (LUS), despite opposition from local broadband service providers.[21] In just a year-and-a-half, the program brought in more than 1,000 new jobs with salaries averaging $60,000 through three new businesses that established themselves in the city because of the strong economic development incentives associated with the fiber system.[22] LUS Fiber also delivered greater value and opportunities for connectivity to schools and libraries. By mid-2008, schools in the Lafayette Parish School System were able to access 100 Mbps speeds for $390/month, saving the community significant tax dollars while allowing

[17] "Municipal FTTH Networks," Muni Networks, (Jan. 1, 2017), *available at* https://muninetworks.org/content/municipal-ftth-networks.
[18] Dave Flessner, "EPB fiber optics gives Chattanooga a boost," Times Free Press, (September 16, 2015). Note that while the network did receive a Department of Energy grant for smart grid investments, those funds were used for telecommunications needs on the electric side, not the triple-play telecommunications side of the business.
[19] *Id.*
[20] "Chattanooga Subs Continue to Increase as Smart Grid Saves," Muni Networks, (July 20, 2018) https://muninetworks.org/content/chattanooga-subs-continue-increase-smart-grid-saves.
[21] "Community-Based Broadband Solutions: The Benefits of Competition and Choice for Community Development and Highspeed Internet Access," The Executive Office of the President at 15 (Jan. 2015), https://obamawhitehouse.archives.gov/sites/default/files/docs/community-based_broadband_report_by_executive_office_of_the_president.pdf.
[22] Institute for Local Self-Reliance, "Transcript: Community Broadband Bits Episode 144," Muni Networks (April 10, 2015), https://muninetworks.org/content/transcript-community-broadband-bits-episode-144.

students to leverage the internet for educational purposes.[23] The very prospect of entry by LUS Fiber in Lafayette led Cox Communications, the private regional provider in Lafayette, to stop raising its rates between 2004 to 2007—as it had done six times in four years prior to Lafayette's endeavor into municipal broadband.[24]

Both Chattanooga and Lafayette have operated for nearly 10 years, generating far more benefits than costs. Neither is at risk of failing to pay its debts or operating costs. However, several other networks have even longer track records of success. Cedar Falls Utilities in Iowa has operated a municipal broadband network for longer than 20 years and recently upgraded from its original HFC network to full Fiber-to-the-Home. It has the vast majority of subscribers in the market. In Utah, Spanish Fork has operated for the previous 16 years and is generating revenue surpluses that support the general fund. Spanish Fork provides competition to Comcast and CenturyLink while Cedar Falls provides competition to CenturyLink and Mediacom.

Despite these success stories, about 20 states have passed anti-municipal broadband laws.[25] These laws can be broadly categorized as follows: (1) bureaucratic barriers, (2) prohibition on the direct sale of broadband by the local government, (3) prohibitive referendum requirements, (4) limiting the service area of a municipal network through population caps or territory limits, (5) excessive taxation on municipal services.[26] These anti-municipal broadband laws delay, inflate the costs of, or even preclude municipal broadband, which then prevent consumers from realizing the competitive benefits of these networks.

---

[23] "Community-Based Broadband Solutions: The Benefits of Competition and Choice for Community Development and Highspeed Internet Access," The Executive Office of the President at 15 (Jan. 2015), https://obamawhitehouse.archives.gov/sites/default/files/docs/community-based_broadband_report_by_executive_office_of_the_president.pdf.
[24] *Id* at 16.
[25] "Municipal Broadband is Roadblocked or Outlawed in 20 States," Broadband Now (April 3, 2018) ("Broadband Now Report"), *available at* https://broadbandnow.com/report/municipal-broadband-roadblocks/.
[26] *Id.*

Bureaucratic barriers. Michigan's state laws require local governments to request bids and receive fewer than three qualified bids before any local network operation can proceed.[27] North Carolina's state laws were found by the FCC to limit competition by creating impossible requirements for new networks to meet and preventing existing networks from expanding.[28] The state actually forced a municipal network serving an entire community to leave the market if a private provider began offering service, explicitly preventing competition.[29] Similarly, Virginia prohibits municipal networks from providing subsidized service and undercutting incumbent providers on pricing, something we ordinarily expect market competition to do for the benefit of those purchasing services.[30] Wisconsin also has minimum pricing requirements and prohibits subsidized services.[31]

Prohibition on direct sales. Other states prohibit the direct sales of municipal broadband in some way.[32] Arkansas only allows municipalities that operate electric utilities to provide communication services, but they are not allowed to provide "basic local exchange service"—meaning traditional phone services.[33] Missouri prohibits municipal networks from selling or leasing any telecom service to private providers, with narrow exceptions for services used for educational, emergency, and healthcare purposes as well as municipal networks that provide internet services only to local residences.[34] This restriction has limited investment by cities that believed a successful business model would involve also offering television and/or

[27] Jon Brodkin, "ISP lobby has already won limits on public broadband in 20 states," Ars Technica, (Feb. 12, 2014).
[28] "FCC Releases Order Preempting TN & NC Municipal Broadband Restrictions," Federal Communications Commission, (March 12, 2015), https://www.fcc.gov/document/fcc-releases-order-preempting-tn-nc-municipal-broadband-restrictions.
[29] Lisa Gonzalez, "Suddenlink Plans Pinetops Deployment, Greenlight Must Go," Muni Networks, (Jan. 30, 2018), https://muninetworks.org/content/suddenlink-plans-pinetops-deployment-greenlight-must-go.
[30] *Id.*
[31] *Id.*
[32] Broadband Now Report.
[33] Jon Brodkin, "ISP lobby has already won limits on public broadband in 20 states," Ars Technica (Feb. 12, 2014).
[34] Jon Brodkin, "ISP lobby has already won limits on public broadband in 20 states," Ars Technica (Feb. 12, 2014); *see also* Broadband Now Report.

telephone service. Telephone service is particularly important for any network seeking small business customers. Washington prohibits public utility districts from offering all telecommunication services directly to customers, but it permits wholesale models under certain conditions, including nondiscriminatory rates and terms.[35]

Referendum requirements. Alabama and Louisiana require voters to approve a ballot referendum before localities can operate a municipal network.[36] In Colorado, communities must vote on referenda before pursuing any local networks, unless an incumbent ISP has rejected a request to provide specific broadband services in an area.[37] In Minnesota, municipalities must secure approval from a super-majority, or 65 percent, of voters before offering local exchange services and are prohibited from building broadband-only networks in competition with the private sector.[38]

Service caps. Nevada has a strict population cap on the service area of a municipal broadband network. Municipalities with over 25,000 residents and counties with over 50,000 residents cannot provide telecommunications services.[39] This anti-municipal broadband approach especially impacts dense low-income urban neighborhoods that stand to benefit from municipal networks.[40] It also prevents smaller cities from utilizing smart grid setups that can drive innovation.[41]

Punitive taxes. Florida imposes a special *ad valorum* tax on municipal telecommunication services.[42] In addition, municipal broadband projects are subject to a

[35] Broadband Now Report.
[36] *Id.*
[37] *Id.*
[38] Baller Stokes & Lide, "State Restrictions on Community Broadband Services or Other Public Communications Initiatives," (Jan. 11, 2018), *available at* https://www.baller.com/2018/01/state-restrictions-on-community-broadband-services-or-other-public-communications-initiatives/.
[39] *Id.*
[40] Broadband Now Report.
[41] *Id.*
[42] Jon Brodkin, "ISP lobby has already won limits on public broadband in 20 states," Ars Technica (Feb. 12, 2014); *see also* Broadband Now Report.

profitability requirement—projects are required to recoup investment within four years—that makes it difficult to approve capital-intensive projects.[43]

Utah offers a case study in how anti-municipal laws harm broadband subscribers as well as the market more generally. Utah was an early state in passing legislation to limit local authority to build broadband networks.[44] Spanish Fork built its network prior to the law taking effect and was subsequently grandfathered in, allowing it to use the retail model it favored. Provo also preferred that model, but was later limited by state law to using a wholesale-only model that had many more pitfalls than most realized at that time. Spanish Fork, unencumbered by state law, has gone on to tremendous success, whereas Provo later sold its network to Google for $1 after a series of financial problems that are directly attributable to the state law that limited Provo's authority to choose its business model.[45] Nonetheless, opponents of municipal broadband regularly point to Provo as a reason that states should limit local authority, rather than recognizing that state laws interfering with local decision-making are the larger problem.

B. Open Access Policies Allow Competition to Flourish

Approximately 30 municipal networks in the United States, including some citywide ones, have embraced the concept of "open access," which allows multiple ISPs to use the same infrastructure to offer competing services.[46] These networks encourage competition by dramatically lowering the barriers to market entry for ISPs.

Grant County Public Utility District in Washington state has operated an open access network for nearly 20 years. Local residents and businesses can choose from many different

---

[43] *Id.*
[44] Brendan Greeley and Alison Fitzgerald, ""Pssst...Wanna Buy A Law?" Bloomberg Businessweek, (Dec. 1, 2011), *available at* http://www.bloomberg.com/bw/magazine/pssst-wanna-buy-a-law-12012011.html.
[45] Christopher Mitchell, "How Lobbyists in Utah Put Taxpayer Dollars at Risk to Protect Cable Monopolies," Muni Networks (Nov. 11, 2015), *available at* www.muninetworks.org/content/how-lobbyists-utah-put-taxpayer-dollars-risk-protect-cable-monopolies.
[46] "Open Access," Muni Networks, https://www.muninetworks.org/content/open-access

wireline providers where the fiber is available and wireless providers have used the network as backhaul for their business models.[47]

The Northwest Open Access Network reaches across Washington into every county and is considered a municipality because it is a joint venture of many public utility districts in the state. The network has helped many tens of small ISPs compete in broadband markets across the state, connected anchor institutions, and facilitating improved wireless access in rural and mountainous regions.[48]

In Idaho, the city of Ammon has garnered acclaim for its new approach to open access that promises to still further lower the barriers of entry for small ISPs while lowering the risk for local governments that wish to create this marketplace.[49] The city is building an open access fiber-optic network featuring a portal that allows subscribers to choose ISPs at the click of a button. ISPs have very little cost to join the network, allowing even the smallest ISPs to create additional market competition.[50]

The Commission should study these efforts and could encourage open access by conditioning certain subsidy programs on operating an open network. Municipalities should not be restricted from pursuing open access policies.

---

[47] Christopher Mitchell, "Lessons from the Nation's Oldest Open Access Fiber Network - Community Broadband Bits Podcast 279," Muni Networks (Nov. 15, 2017), *available at* https://muninetworks.org/content/lessons-nations-oldest-open-access-fiber-network-community-broadband-bits-podcast-279.

[48] Christopher Mitchell, "More Details on the Northwest Open Access Network - Community Broadband Bits Episode 164), Muni Networks (Aug. 18, 2015), *available at* http://muninetworks.org/content/more-details-northwest-open-access-network-community-broadband-bits-episode-164; *see also* Christopher Mitchell, "NoaNet Touches Every County in Washington State - Community Broadband Bits Episode 159," Muni Networks (July 14, 2015), *available at* http://muninetworks.org/content/noanet-touches-every-county-washington-state-community-broadband-bits-episode-159.

[49] Paddy Leerssen and David A. Talbot, "Enabling Competition & Innovation on a City Fiber Network," Berkman Klein Center for Internet & Society, (October 2017).

[50] Jon Brodkin, "Municipal fiber network will let customers switch ISPs in seconds," ArsTechnica, (June 16, 2016).

C. USTelecom's UNE Forbearance Petition Would Harm Competition

USTelecom recently submitted a petition to the Commission that, if granted, would be disastrous for broadband competition. USTelecom seeks forbearance from a requirement to sell unbundled network elements (UNEs) to competitors at a reasonable and nondiscriminatory rates. If approved, this petition would prevent smaller providers from getting access to fiber and competing against incumbents.[51] Competitive ISPs need access to UNEs and discounted resale to compete in the marketplace.[52] Although the proceeding for USTelecom's petition is ongoing and separate, commenters note that if accepted, this forbearance would serve as a major regulatory move from the Commission to favor consolidated power in the fixed broadband market. We urge the Commission to reject this petition and retain its authority under section 271(c)(2)(B) to protect reasonable access to rights-of-way.

IV. ISPs Use Many Business Practices to Limit Consumer Choice

The Commission requests comment on any "demonstrated marketplace practices" that pose a barrier to competition in the fixed broadband marketplace.[53] This is an important area for discussion, as millions of Americans have only one option for a fixed broadband service provider.[54] This lack of competition is partly the result of the business practices of the country's major ISPs, including choosing not to compete against each other, erecting country's major prohibitive switching costs for consumers, brokering anticompetitive deals with multiple tenant environments, and "tier flattening" tactics that exploit consumers' lack of choice.

---

[51] Nicole Lee, "Small internet providers face a fight for their lives," Endadget, (July 11, 2018), https://www.engadget.com/amp/2018/07/11/small-internet-providers-face-a-fight-for-their-lives/.
[52] Opposition of Public Knowledge, the Benton Foundation, Next Century Cities, New America's Open Technology Institute, and the National Hispanic Media Coalition, WC Docket No. 18-141, at 12 (Aug. 6, 2018); Opposition of INCOMPAS, FISPA, Midwest Association of Competitive Communications, and the Northwest Telecommunications Association, WC Docket No. 18-141 at 37 (Aug. 6, 2018).
[53] Public Notice at 1.
[54] H. Trostle and Christopher Mitchell, "Profiles of Monopoly: Big Cable and Telecom," (July 2018), Institute for Local Self-Reliance ("Profiles of Monopoly Report").

A. ISPs Have Carved Out Monopoly Status Over Millions of Americans

The largest fixed broadband providers face very little competition in most of the United States. The Commission's aforementioned Internet Access Services Report, although limited due to its reliance on industry-reported data, details the anticompetitive state of the market. Thirty percent of developed census blocks have only one provider for fixed high-speed broadband (using the Commission's definition), and 13 percent of developed census blocks have no provider.[55] Only 26 percent of developed census blocks have three or more providers for fixed high-speed broadband, according to Form 477 data.[56] According to the Commission's latest data, 51 percent of Americans have only one provider for high-speed fixed broadband access, and only 38 percent of Americans have more than one choice.[57] Comcast is the sole provider for 30 million Americans; Charter for 38 million Americans; CenturyLink for 1 million Americans; AT&T for 745,000 Americans; and Verizon for 185,000 Americans.[58]

The fact that ISPs have achieved monopoly status over millions of Americans suggests deliberate anticompetitive conduct. According to the Center for Public Integrity, ISPs "appear to carve up territory to avoid competing with more than one other provider."[59] Moreover, ISPs appear to invest the minimum required for Connect America Fund money in areas where they do not face competition, while focusing more investment in areas where they *do* face competition.[60] This practice consolidates the market in rural areas and other parts of the country that lack competition, while strengthening ISPs' grip on urban areas.

---

[55] Feb. 2018 Internet Access Services Report, Figure 4.
[56] *Id.*
[57] *See* 2016 Broadband Progress Report, 31 FCC Rcd 2667 at ¶ 86 (rel. Jan. 29, 2016). The Commission's most recent Broadband Deployment Report did not include an updated figure on the percent of Americans with one or more choices for fixed high-speed broadband service providers.
[58] Profiles of Monopoly Report at 3.
[59] "U.S. Internet users pay more and have fewer choices than Europeans," Center for Public Integrity (April 1, 2015).
[60] *Id.* ("Despite the Connect America Fund, the large providers have rarely invested in next-generation services in areas where they do not face competition… Large firms appear to invest in modern networks solely where they face competition and provide the minimum allowable under subsidy programs elsewhere.").

AT&T and Verizon also take advantage of their monopoly status through a method the National Digital Inclusion Alliance calls "tier flattening." In areas where AT&T and Verizon face no competition, they charge DSL customers the same price they charge customers who receive fiber speeds up to 100/100 Megabits per second.[61] This practice, a result of companies purposefully avoiding each other and facing zero competition in certain areas, harms both consumers and the broader market.

B. ISPs Create High Switching Costs for Consumers

In the few areas where ISPs do compete against each other, consumers face substantial switching costs that make it difficult to change providers. These costs include a search cost, an uncertainty cost, a compatibility cost, and contractual costs.[62] Key to these costs is the fact that a consumer might already be locked in by a restrictive contract with their current provider, with no way out regardless of the service they are receiving. Additionally, even if consumers *can* find a way out of their contract, they might not be able to comparison shop between competing plans because ISPs often provide opaque and misleading information about pricing, speeds, and data allowances. The Commission attempted to address this problem with the 2015 Open Internet Order's transparency requirements and the 2016 Broadband Nutrition Label, but those initiatives have since been repealed.[63]

[61] "Tier Flattening: AT&T and Verizon Home Customers Pay a High Price for Slow Internet," National Digital Inclusion Alliance (July 31, 2018), *available at* www.digitalinclusion.org/wp-content/uploads/2018/07/NDIA-Tier-Flattening-July-2018.pdf.
[62] Robert Kenny and Aileen Dennis, "Consumer lock-in for fixed broadband," Communications Chambers, (Sep. 5, 2013), *available at* www.ccianet.org/wp-content/uploads/2013/10/Consumer-Lock-In-For-Fixed-Broadband.pdf.
[63] The Broadband Nutrition Label included providers' pricing, data allowance, and performance metrics. *See* Micah Singleton, "FCC introduces broadband labels inspired by nutrition facts," The Verge (April 4, 2016); Declaratory Ruling, Report and Order, and Order, WC Docket No. 17-108, ¶ 231 (Dec. 2017) ("We eliminate the consumer broadband label safe harbor for form and format of disclosures adopted in the Title II Order. Adopting the label could require some ISPs to expend substantial resources to tailor their disclosures to fit the format.").

In Minnesota, Frontier created early termination fees that applied to long term customers who wanted to switch to a newly-created fiber-optic network by a nearby cooperative.[64] Frontier used these fees to disrupt market competition, abusing the market power it had accrued previously as an incumbent monopolist. Its goal was undoubtedly to send a message to other small ISPs in the region that they should not try to compete with Frontier.

C. ISPs Broker Anticompetitive Deals with Landlords of Multiple Tenant Environments

Many ISPs take the extreme step of brokering deals with landlords of apartment complexes and other multiple tenant environments (MTEs) that prevent any other ISP from offering service to tenants. These landlord-sanctioned monopolies severely limit competition, even in urban areas that otherwise have access to multiple ISPs.[65] The Commission seemingly acknowledged this problem in a recent Notice that asked for comment on the effects of state and local regulatory barriers, exclusive marketing and bulk billing arrangements, revenue sharing agreements, and exclusive wiring arrangements affect competition and deployment in MTEs.[66]

Revenue sharing agreements between landlords and fixed ISPs are especially pernicious, as the provider pays the landlord a "kickback" for each resident who subscribes to their service. These arrangements, which shut out competition even without an exclusivity contract, create an expectation that landlords can use their tenants' broadband service as an additional revenue stream. As a result, competing ISPs that are unable or unwilling to

[64] Minnesota Public Utilities Commission E-Filing, Docket No. P-522, 405/C-13-941, (Feb. 19, 2014), https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={4A6E8FBF-E0A7-4936-A226-49B1F000A30E}&documentTitle=20142-96599-01.
[65] INCOMPAS Ex Parte, WT Docket No. 16-138, WC Docket No. 16-132, IB Docket No. 16-131, PS Docket No. 16-128; WC Docket No. 05-25; WC Docket No. 16-143, RM-10593, (Feb. 13, 2017); Interview by Chris Mitchell, Community Broadband Bits Podcast, with Charles Barr, President, Webpass, and Lauren Saine, Policy Advisor, Webpass (Apr. 12, 2016) (discussing non-contractual practices between MTE owners and providers that, according to Mr. Barr, "basically creat[e] exclusive agreements physically"), *available at* https://muninetworks.org/content/transcript-community-broadband-bits-episode-197.
[66] Notice of Inquiry, GN Docket No. 17-142, ¶¶ 11-15 (June 1, 2017).

participate in revenue sharing schemes are denied access to those MTEs.[67] Competing ISPs often report that developers and landlords demand revenue sharing agreements. These schemes are so pervasive that a cottage industry of intermediaries has emerged just to market the deals to developers and real estate investors.[68] All of these practices need to be studied and addressed by the Commission to prevent ISPs' continued manipulation of the MTE market.

D. ISPs "Digitally Redline" Service to Low-Income Areas

When fixed broadband providers deploy next-generation and improved home internet service, they often purposefully ignore low-income communities. This practice, which amounts to "digital redlining," is highlighted in a recent report that detailed how AT&T systematically discriminated against lower-income neighborhoods in Cleveland over the past ten years. As AT&T upgraded service to more affluent neighbors, these communities were left behind with antiquated, slow networks.[69] This practice demonstrates that the lack of competition in the broadband market reduces incentives for ISPs to maintain quality service and contributes to growing inequality in the United States.

V. The Commission Should Reject Hyperbolic Claims About Mobile 5G and Limit Its Assessment to Fixed ISPs

The Commission is likely to receive comments in this proceeding that overhype the promise of 5G mobile wireless networks. We urge the Commission to reject hyperbolic claims and soberly examine the potential of this technology. Mobile wireless broadband service is at

[67] Comments of INCOMPAS, GN Docket No. 17-142, at 9-10 (July 24, 2017).
[68] Susan Crawford, "The New Payola: Deals Landlords Cut With Internet Providers," *Wired* (June 27, 2016) ("Webpass is a competitive ISP working to provide gigabit access in San Francisco, San Diego, and three other markets. Its president, Charles Barr, is deeply frustrated: "Tenants want us, but we can't get in," he says. "The market for Internet access doesn't work, because there aren't a lot of choices for people.").
[69] "AT&T's Digital Redlining Of Cleveland," Connect Your Community and the National Digital Inclusion Alliance (Mar. 10, 2017) ("Specifically, AT&T has chosen not to extend its "Fiber To the Node" VDSL infrastructure – which is now the standard for most Cuyahoga County suburbs and other urban AT&T markets throughout the U.S. – to the majority of Cleveland Census blocks, including the overwhelming majority of blocks with individual poverty rates above 35%").

best a complement to fixed broadband service. Mobile wireless ISPs operate in a separate market from fixed ISPs and the distant prospect of 5G is unlikely to change that reality. The enthusiasm around 5G harkens back to claims that broadband over power lines would offer strong competition to the cable and telephone companies, only to fizzle out. Therefore, the Commission should not include mobile wireless ISPs in its assessment of fixed broadband competition.

Mobile 5G technologies, although promising, are years away from commercial rollout at scale. No wireless provider has deployed mobile 5G networks at a scale that could conceivably make them a viable competitor and substitute for fixed broadband. Even when mobile 5G is deployed on a widespread basis, analysts do not believe mobile 5G signals will be able to penetrate buildings in a manner that is sufficiently competitive with fixed broadband.[70] Further, based on the history of past mobile wireless technology upgrades—and the technical characteristics of millimeter wave spectrum—mobile 5G will very likely be deployed in urban areas and do little to bring competition to rural areas. Moreover, mobile 5G networks will require extensive backhaul from fixed networks, which means 5G could actually *strengthen* the market power of fixed ISPs.

A. Mobile 5G is Years Away From Large-Scale Deployment

Mobile 5G technology is still years away from being deployed in a widespread fashion.[71] The first deployments at scale are not expected until 2020 at the earliest,[72] and some analysts

[70] "5G: Known unknowns," New Street, (April 17, 2016), http://www.newstreetresearch.com/download/5G%20April%202016%20slides.pdf, at 8.
[71] See, e.g., Statement of FCC Chairman Tom Wheeler, Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, GN Docket No. 14- 177 (July 14, 2016), https://apps.fcc.gov/edocs_public/attachmatch/FCC-16- 89A2.pdf.
[72] Klint Finley, "Does It Matter If China Beats The US To Build A 5G Network?" Wired, (June 6, 2018), https://www.wired.com/story/does-it-matter-if-china-beats-the-us-to-build-a-5g-network/, ("Carriers don't expect national availability in the US until 2020. The wireless industry promises that 5G will bring enormous boosts in speed and reliability to mobile devices, bridge the gap between wireline and wireless

predict that large-scale deployment of well-functioning 5G services will not happen until 2022 or 2023.[73] It would be a mistake for the Commission to judge the purported benefits of 5G before its actual deployment and adoption by American consumers. In the absence of large-scale deployments and a chance for consumers to experience the technology, 5G is currently awash in marketing hype. While many industry experts predict that 5G will be a mere incremental improvement from 4G and LTE,[74] others hope it will serve as substitute for fixed broadband. Both of these claims are speculative at best. 5G is not ready for deployment and it is certainly not ready to be used as a gauge for broadband competition.

B. Mobile 5G Service in Non-Urban Areas is Unlikely

There are several reasons to believe that any "5G revolution" will only happen in densely-populated urban areas, leaving rural and suburban communities largely untouched. While wireless providers tout their focus on 5G, the reality is that many parts of America are still waiting for 4G service.[75] The effort to bring 4G LTE service to rural areas is still ongoing. A bipartisan group of 30 senators recently expressed concern that the effort is not moving fast enough, writing to Chairman Pai that the Mobility Fund Phase II Support map "falls short of an accurate depiction of areas in need of universal service support."[76] Furthermore, Verizon has been accused of "grossly overstating" its 4G coverage, particularly in rural areas.[77] There is little

---

broadband speeds, and enable a new wave of technologies and applications that we can't even imagine yet.").

[73] "5G: Known unknowns," New Street at 8 (April 17, 2016), *available at* www.newstreetresearch.com/download/5G%20April%202016%20slides.pdf.

[74] *Id.*

[75] Ajit Pai, "Bridging the Digital Divide," FCC Blog, (July 13, 2017), https://www.fcc.gov/news-events/blog/2017/07/13/bridging-digital-divide, ("...You can't even get 4G LTE wireless service on more than 7,700 road miles in rural parts of the same state. And this is unfortunately common nationwide.").

[76] Letter from Senators Wicker, Hassan, et al., to Ajit Pai, Chairman, FCC (May 30, 2018), https://docs.fcc.gov/public/attachments/DOC351493A2.pdf ("Wicker/Hassan Letter") ("Communities in our states that are not initially eligible or successfully challenged will be ineligible for up to $4.53 billion in support over the next 10 years, exacerbating the digital divide and denying fundamental economic and safety opportunities to rural communities.").

[77] Informal Request Of The Rural Wireless Association, Inc. For Commission Action, WC Docket No. 10-90 at 3 (Aug. 6, 2018).

reason to believe that these providers will bring 5G service to communities they have not elected to serve with 4G service, even under pressure from the Commission and Congress.

Furthermore, the propagation characteristics of the high-frequency spectrum that is being licensed for mobile 5G is ideally suited for urban areas with high building density. Signals in the millimeter wave spectrum being set aside for 5G propagate at very short distances and are particularly vulnerable to weather and other natural obstacles such as foliage.[78] These characteristics mean that 5G service will depend on an extensive network of small cells that are deployed in close proximity to each other—all of which makes 5G poorly suited for less dense, leafy areas. Accordingly, 5G deployments will likely focus on dense urban areas that can support these technical requirements.[79]

The cost of deploying 5G service to rural areas will also be a major obstacle. New Street found that Verizon's plan to use small cells to build out backhaul for its mobile 5G network will require 360,000 nodes, take 5 to 8 years, and cost $35 billion.[80] This enormous project would lay the foundation of a 5G network for just 44 million homes in the nation's largest 100 metropolitan areas. This is just the initial step for partial deployment of an urban 5G network by one of the nation's biggest wireless providers. The cost of a similar effort for the rest of the country could be prohibitively expensive and limit 5G's prospects to the nation's largest cities. Indeed, New Street concluded that Verizon would not get sufficient return on investment if it expanded its efforts beyond a certain suburban population density, even in the largest metropolitan markets.[81]

---

[78] Larry Thompson and Warren Vande Stadt, "5G Is Not the Answer For Rural Broadband," Broadband Communities Magazine at 25 (March/April 2017), *available at* http://www.bbcmag.com/2017mags/Mar_Apr/BBC_Mar17_5GNotAnswer.pdf; "5G: Known unknowns," New Street at 8 (April 17, 2016), www.newstreetresearch.com/download/5G%20April%202016%20slides.pdf.

[79] *Id.*

[80] "3Q17 Cable Trends Review: Fixed Wireless Broadband Is Real, But It's Not What It Seems," New Street, (Jan. 13, 2018), https://www.newstreetresearch.com/download-page/3q17-us-cable-trends-fixed-wireless-broadband-real-but-not-what-it-seems/.

[81] *Id.*

C. Mobile 5G Will Rely Heavily On Wireline Backhaul, Which Could Strengthen the Market Power of Fixed ISPs

Mobile 5G networks need fixed broadband backhaul to quickly deliver vast amounts of data—similar to current mobile wireless technology. Indeed, an estimated 60 percent of mobile data traffic is currently offloaded onto fixed networks.[82] The mobile 5G ecosystem will also rely on a variety of unlicensed and spectrum sharing policies.[83] Customized 5G networks deployed by property managers, rural operators, small businesses, and neutral hosts will be particularly dependent on the Citizens Band Radio Service's 3.5 GHz band and a similar spectrum-sharing framework for the 3.7 GHz-4.2 GHz band (C-Band).[84] The Commission should support and enhance these spectrum-sharing policies to lay the groundwork for mobile 5G, but also recognize that these efforts will not bring wireless providers into the fixed broadband market. Mobile 5G networks will not operate on mobile technology alone, and therefore cannot be considered viable substitutes for fixed broadband. If anything, the increased dependence on fixed backhaul networks could strengthen the market power of fixed ISPs.

VI. Conclusion

The nation's fixed broadband market is beset with limited choice, high costs, and anti-competitive conduct, but the Commission can and should take steps to remedy the situation. By collecting better data, empowering communities to invest in their own competitive networks, and

[82] *See* Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2016–2021 White Paper, Cisco (March 28, 2017); Reply Comments of New America's Open Technology Institute, GN Docket No. 17-199, (Oct. 6, 2017); "Verizon's '5G' Fixed Wireless Ambitions," New Street (Oct. 8, 2016).
[83] Reply Comments of New America's Open Technology Institute and Public Knowledge, GN Docket No. 17-183 (Nov. 15, 2017) ("The "5G" wireless ecosystem, just like the present 4G wireless ecosystem, will rely on a combination of centralized carrier networks (that are truly mobile) and a far larger number of complementary, high-capacity and customized networks deployed by individual business firms, property managers and individual households to meet their particular needs at a lower cost. Today Wi-Fi, deployed at the edge, makes mobile data more fast and affordable. In a 5G world, private, indoor and customized small cell networks using LTE and possibly other technologies will further enhance the ecosystem.").
[84] *Id.* at 17.

eliminating practices that disempower consumers and enshrine monopolies, the Commission could create a broadband market that is competitive, innovative, and accessible.

We thank the Commission for the opportunity to participate in this proceeding and welcome further discussion. We also encourage the Commission to establish a reply comment period in this proceeding so that commenters can engage with each other and to encourage other parties to participate.